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CENTRAL FAX CENTER

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CLAIM AMENDMENTS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. Notably, the status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

1 **1. (Currently Amended)** An analyte sensing device for sensing a concentration of
2 analyte in a fluid, the analyte sensing device comprising:

3 a housing; and

4 an analyte sensing component disposed within the housing and including:

5 a first radiation converting component that is capable of converting radiation
6 of a first wavelength to radiation having at least one different wavelength, wherein
7 the efficiency of conversion is dependent on the concentration of the analyte within
8 the housing;

9 an analyte-specific binding ligand; and

10 a macroporous matrix wherein the analyte-specific binding ligand is attached
11 to the surface of, or embedded in the macroporous matrix.

1 **2. (Previously Presented)** The analyte sensing device of claim 1 wherein the
2 housing includes a permeable or semi-permeable membrane.

1 **3. (Previously Presented)** The analyte sensing device of claim 2 wherein the
2 membrane is comprised of a cellulose acetate material.

1 4. **(Previously Presented)** The analyte sensing device of claim 1 wherein the
2 housing includes at least a permeable or semi-permeable portion.

1 5. **(Previously Presented)** The analyte sensing device of claim 4 wherein the
2 permeable or semi-permeable portion of the housing is comprised of a cellulose acetate
3 material.

1 6. **(Previously Presented)** The analyte sensing device of claim 4 wherein the
2 housing includes a hollow dialysis fiber.

1 7. **(Currently Amended)** The analyte sensing device of claim 1 wherein analyte
2 sensing component further includes ~~an~~ the analyte-specific binding ligand is a lectin.

1 8. **(Currently Amended)** The analyte sensing device of claim 1 ~~7~~ wherein the
2 analyte sensing component further includes a radiation absorbing component in close
3 proximity to the analyte-specific binding ligand ~~a macroporous matrix wherein the analyte-~~
4 ~~specific binding ligand is attached to the surface of the macroporous matrix or embedded~~
5 ~~within the macroporous matrix.~~

1 9. **(Currently Amended)** The analyte sensing device of claim 1 ~~8~~ wherein the
2 analyte is glucose and wherein the macroporous matrix includes agarose beads and the
3 analyte-specific binding ligand includes a lectin.

1 10. **(Previously Presented)** The analyte sensing device of claim 9 wherein the
2 lectin is Concanavalin A.

1 11. **(Currently Amended)** The analyte sensing device of claim 1 7 wherein the
2 analyte-specific binding ligand is covalently labeled with or is in close proximity to a
3 radiation absorbing component.

1 12. **(Previously Presented)** The analyte sensing device of claim 1 wherein the
2 analyte sensing component further comprises an analyte-analogue capable of being bound
3 by analyte-specific analyte binding ligand.

1 13. **(Previously Presented)** The analyte sensing device of claim 1 wherein the
2 analyte sensing component further includes a second radiation converting component that
3 is capable of converting radiation of a second wavelength to at least one different
4 wavelength wherein the efficiency of conversion is dependent on the concentration of the
5 analyte within the housing.

1 14. **(Currently Amended)** The analyte sensing device of claim 1 wherein the
2 analyte sensing component further includes a second radiation converting component
3 chromophore that is capable of converting radiation of a second wavelength to radiation
4 having at least one different wavelength wherein the efficiency of conversion is
5 independent or substantially independent of the concentration of the analyte within the
6 housing.

1 15. **(Previously Presented)** The analyte sensing device of claim 1 wherein the
2 device is capable of being implanted within subcutaneous tissue of an animal body.

1 16. **(Currently Amended)** The analyte sensing device of claim 1 wherein the
2 analyte sensing component further comprises:
3 an analyte-analogue;
4 ~~a macroperous matrix material;~~
5 ~~an analyte-specific binding ligand attached to the surface of or throughout the~~
6 ~~macroperous matrix material and capable of binding analyte and/or analyte-analogue;~~
7 a radiation absorbing component in close proximity to the analyte-specific binding
8 ligand; and
9 wherein the first radiation converting component is attached to the analyte-analogue
10 and the analyte-specific binding ligand is capable of binding to the analyte and/or analyte-
11 analogue.

1 17. **(Previously Presented)** The analyte sensing device of claim 16 wherein the
2 housing comprises a permeable or semi-permeable membrane which allows analyte to
3 move into or out of the housing but does not allow analyte sensing component to move out
4 of the housing.

1 18. **(Currently Amended)** The analyte sensing device of claim 16 wherein the
2 efficiency of conversion of radiation at the first wavelength to radiation having the at least

3 one different wavelength by the first radiation converting component is decreased when the
4 analyte-analogue is bound by the analyte-specific binding ligand.

1 19. (Previously Presented) The analyte sensing device of claim 16 wherein the
2 analyte-analogue is a dextran.

1 20. (Previously Presented) The analyte sensing device of claim 16 wherein the
2 analyte-analogue is a glycosylated or mannosylated protein.

1 21. (Currently Amended) The analyte sensing device of claim 18 ~~46~~ wherein the
2 analyte-analogue includes a polymeric chain of glucose residues ~~is a glycosylated or~~
3 ~~mannosylated dendrimer.~~

1 22. (Previously Presented) The analyte sensing device of claim 16 wherein the
2 first radiation converting component is Alexa647.

1 23. (Currently Amended) The analyte sensing device of claim 16 wherein the
2 analyte-specific binding ligand is a lectin.

1 24. (Previously Presented) The analyte sensing device of claim 23 wherein the
2 lectin is Concanavalin A.

1 25. **(Previously Presented)** The analyte sensing device of claim 23 wherein the
2 lectin is *Lens culinaris* lectin.

1 26. **(Previously Presented)** The analyte sensing device of claim 16 wherein the
2 radiation absorbing component is QSY21.

1 27. **(Previously Presented)** The analyte sensing device of claim 16 wherein the
2 radiation absorbing component is covalently bound to the analyte-specific binding ligand.

1 28. **(Previously Presented)** The analyte sensing device of claim 16 wherein the
2 radiation absorbing component is attached to the surface of or embedded throughout the
3 macroporous matrix.

1 29. **(Currently Amended)** The analyte sensing device of claim 16 further including
2 a second radiation converting component capable of converting radiation of a second
3 wavelength into radiation of having at least a wavelength that is different from the second
4 wavelength.

1 30. **(Previously Presented)** The analyte sensing device of claim 29 wherein the
2 second radiation converting component is LD800.

1 31. **(Previously Presented)** The analyte sensing device of claim 16 wherein the
2 analyte is glucose.

Claims 32-70 (Canceled).

1 **71. (Previously Presented)** An analyte sensing system for sensing a
2 concentration of analyte in a fluid, the analyte sensing system comprising:
3 an analyte sensing device including:
4 a housing; and
5 an analyte sensing component disposed within the housing and including a
6 first radiation converting component that is capable of converting radiation of a first
7 wavelength to at least one different wavelength wherein the efficiency of conversion
8 is dependent on the concentration of the analyte within the housing;
9 a radiation providing unit to provide radiation at the first wavelength; and
10 a radiation detecting unit to detect the radiation of at least one different wavelength
11 and output data which is representative of the intensity of the radiation of the at least one
12 different wavelength.

1 **72. (Previously Presented)** The analyte sensing system of claim 71 further
2 including an analysis unit, coupled to the radiation detecting unit, to determine the
3 concentration of analyte within the housing using the data which is representative of the
4 intensity of the radiation of the at least one different wavelength

1 **73. (Previously Presented)** The analyte sensing system of claim 71 wherein the
2 radiation detecting unit includes a plurality of radiation detecting devices wherein each
3 device is capable of detecting a wavelength-specific portion of radiation.

1 **74. (Previously Presented)** The analyte sensing system of claim 71 wherein:
2 the first radiation converting component is capable of converting radiation of the first
3 wavelength to radiation having a plurality of wavelengths wherein the efficiency of
4 conversion is dependent on the concentration of the analyte within the housing; and
5 the radiation detecting unit includes a plurality of radiation detecting devices wherein
6 each device is capable of detecting at least one of the plurality of wavelengths.

1 **75. (Previously Presented)** The analyte sensing system of claim 71 wherein:
2 the first radiation converting component is capable of converting radiation of the first
3 wavelength to radiation having a plurality of wavelengths within a first wavelength range
4 wherein the efficiency of conversion is dependent on the concentration of the analyte
5 inside within the housing; and
6 the radiation detecting unit includes a plurality of radiation detecting devices wherein
7 each device is capable of detecting radiation within the first wavelength range.

1 **76. (Previously Presented)** The analyte sensing system of claim 75 wherein the
2 radiation detecting unit includes one or more photodiode detectors or a CCD array.

1 **77. (Previously Presented)** The analyte sensing system of claim 71 wherein the
2 radiation providing unit is disposed within or adjacent to the housing.

1 **78. (Currently Amended)** The analyte sensing system of claim 71 wherein:

2 the analyte sensing component further includes a second radiation converting
3 component that is capable of converting radiation of a second wavelength to at least one
4 different wavelength wherein the efficiency of conversion is dependent on the
5 concentration of the analyte in the housing;

6 the radiation detecting unit outputs data which is representative of the intensity of
7 the radiation of the at least one different wavelength of the first and second radiation
8 converting components ~~chromophores~~; and

9 wherein the analyte sensing system further includes an analysis unit, coupled to the
10 radiation detecting unit, to determine the concentration of analyte in the housing using the
11 data output by the radiation detecting unit.

1 79. (Currently Amended) The analyte sensing system of claim 71 wherein:

2 the analyte sensing component further includes a second radiation converting
3 component that is capable of converting radiation of a second wavelength to at least one
4 different wavelength wherein the efficiency of conversion is independent or substantially
5 independent of the concentration of the analyte in the housing;

6 the radiation detecting unit outputs data which is representative of the intensity of
7 the radiation of the at least one different wavelength of the first and second radiation
8 converting components ~~chromophores~~; and

9 wherein the analyte sensing system further includes an analysis unit, coupled to the
10 radiation detecting unit, to determine the concentration of analyte inside the housing using
11 the data output by the radiation detecting unit.

1 **80. (Currently Amended)** The analyte sensing system of claim 79 wherein
2 analysis unit uses a difference in the intensities of radiation detected by the radiation
3 detecting unit due to the at least one different wavelength of the first radiation converting
4 component chromophore relative to the at least one different wavelength of the second
5 radiation converting component chromophore.

Claims 81-101 (Canceled).

1 **102. (New)** An analyte sensing device for sensing a concentration of analyte in a
2 fluid, the analyte sensing device comprising:
3 a housing;
4 an analyte-analogue disposed within the housing;
5 a macroporous matrix disposed within the housing;
6 an analyte-specific binding ligand, (i) attached to the surface of the macroporous
7 matrix or (ii) disposed or embedded in the macroporous matrix, and capable of binding to
8 analyte and/or analyte-analogue;
9 a first radiation converting component attached to the analyte-analogue and capable
10 of converting radiation of a first wavelength to radiation having at least one different
11 wavelength, wherein the efficiency of conversion is dependent on the concentration of
12 analyte within the housing; and
13 a radiation absorbing component disposed within the housing and in close proximity
14 to the analyte-specific binding ligand.

1 103. (New) The analyte sensing device of claim 102 wherein the housing
2 comprises a permeable or semi-permeable membrane which allows analyte to move into or
3 out of the housing but does not allow analyte sensing component to move out of the
4 housing.

1 104. (New) The analyte sensing device of claim 102 wherein the efficiency of
2 conversion of radiation at the first wavelength to radiation having the at least one different
3 wavelength by the first radiation converting component is decreased when the analyte-
4 analogue is bound by the analyte-specific binding ligand.

1 105. (New) The analyte sensing device of claim 104 wherein the analyte-analogue
2 includes a polymeric chain of glucose residues.

1 106. (New) The analyte sensing device of claim 102 wherein the analyte-analogue
2 is a dextran.

1 107. (New) The analyte sensing device of claim 102 wherein the analyte-analogue
2 is a glycosylated or mannosylated protein.

1 108. (New) The analyte sensing device of claim 102 wherein the first radiation
2 converting component is Alexa647.

1 109. (New) The analyte sensing device of claim 102 wherein the analyte-specific
2 binding ligand is a lectin.

1 110. (New) The analyte sensing device of claim 109 wherein the lectin is
2 Concanavalin A.

1 111. (New) The analyte sensing device of claim 109 wherein the lectin is *Lens*
2 *culinaris* lectin.

1 112. (New) The analyte sensing device of claim 102 wherein the radiation
2 absorbing component is QSY21.

1 113. (New) The analyte sensing device of claim 102 wherein the radiation
2 absorbing component is covalently bound to the analyte-specific binding ligand.

1 114. (New) The analyte sensing device of claim 102 wherein the radiation
2 absorbing component is attached to the surface of or embedded throughout the
3 macroporous matrix.

1 115. (New) The analyte sensing device of claim 102 further including a second
2 radiation converting component capable of converting radiation of a second wavelength
3 into radiation having at least a wavelength that is different from the second wavelength.

1 116. (New) The analyte sensing device of claim 115 wherein the second radiation
2 converting component is LD800.

1 117. (New) The analyte sensing device of claim 102 wherein the analyte is
2 glucose.